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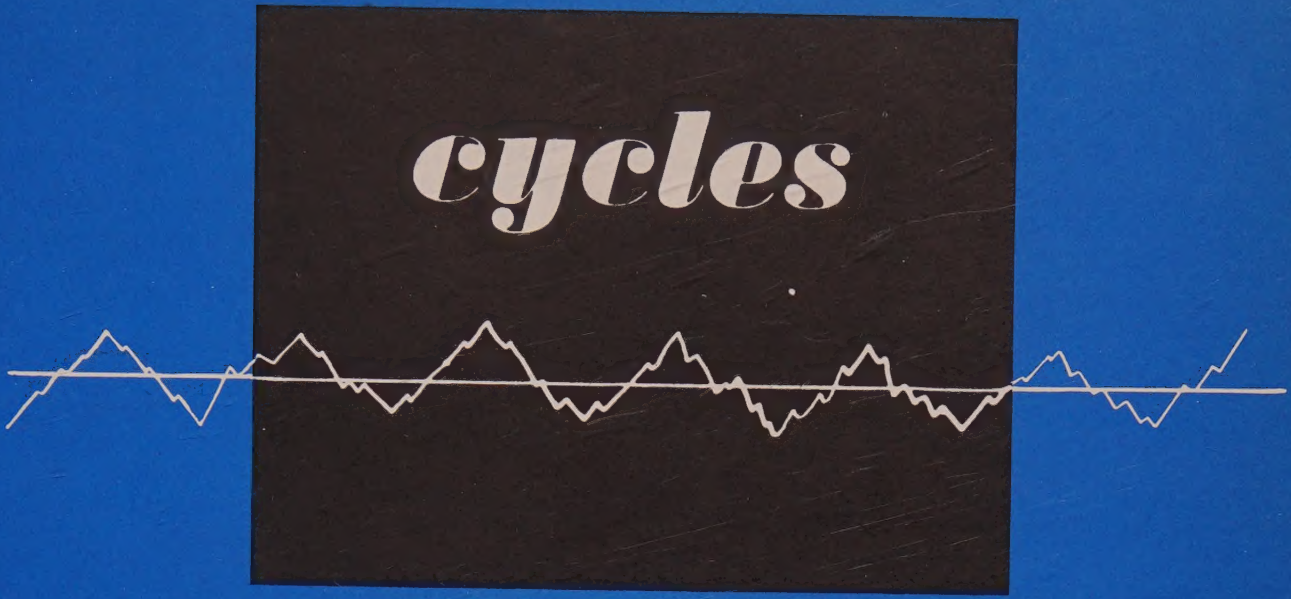

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Program

Our program is (1) *to collect* as many examples as possible of rhythmic fluctuations in all fields of natural and social science, (2) *to measure* each of these rhythms with the greatest possible accuracy, (3) *to record* the latitude, longitude, wave length, wave shape, timing, and strength of each cycle in such a way that any qualified worker can reproduce the work and obtain the same results, and so that he can, if he wishes, take issue with the methods used by the worker to isolate, definitize, and evaluate the cycle, (4) *to stimulate* and help others to do these same things, (5) *to print* the results of all this research, (6) *to arrange*, collect, catalog, and group the cycles thus discovered and definitized, (7) *to discover the laws* which govern the operation of cycles, and (8) *to deduce* the *cause* or causes of cycles—all for the benefit of mankind.

Cycles IS PUBLISHED BY THE FOUNDATION FOR THE STUDY OF CYCLES MONTHLY AT THE FOUNDATION'S OFFICE AT EAST BRADY, PENNSYLVANIA. SUBSCRIPTION RATE $12.50 A YEAR. ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE AT **East Brady, Pennsylvania**, WITH ADDITIONAL ENTRY AT DEXTER, MICHIGAN. PUBLICATION OFFICE, 680 WEST END AVENUE, NEW YORK 25, NEW YORK.

Director's Letter

Dear Member:

The Stupendous '60's

Occasionally, as I visit different cities, a member will invite me to dinner and to spend the night. This doesn't happen often, but it does happen.

On one such occasion recently, in Wilmington, Delaware, at breakfast, my host's wife said, "I wish you'd tell me, in a general sort of way, what's ahead for business conditions in this country, over the next decade or so."

(Later, I was asked the same question by a Pittsburgh lawyer. The lawyer, however, gave me no chance to answer. "The fabulous fifties," he said, "will be followed by the stupendous sixties." He repeated this remark several times, apparently charmed by the alliteration, and the prospect of more and bigger fees. It *is* a neat phrase, isn't it?)

My Wilmington hostess, however, seemed really to want an answer. I talked at considerable length.

"First of all," I said, "anything such as a company, or an industry, or even the manufacturing of an entire country, tends to grow at a lesser and lesser rate as it grows older. This fact is often obscured by booms and depressions. During booms the normal underlying growth tendency is speeded up; during depressions it is slowed down. Still, this underlying tendency is a fact just the same.

"As a country we are still growing, but the law of growth tells us that—*except as distorted one way or the other by booms or depressions*—the percentage by which the '60's are above the '50's will almost certainly be less than the percentage by which the '50's were above the '40's.

"A man of 60 doesn't have quite the umph he had at 50. By 70 he has slowed down still more. It's the same way with an economy.

"On the other hand the country is bigger now. It doesn't need as much *percentage* growth to produce the same amount of *absolute* growth. The *absolute* change of the underlying growth trend should be as great in the '60's as in the '50's.

"It's something like the man I just spoke about. He may not have the umph at 60 he did at 50, but with increased know-how he may be able to *achieve* as much.

"Secondly, the general characteristics of growth are well enough known so than any economist who has studied the figures for the last 150 years would agree that we are substantially above the normal underlying growth trend at the present time. That is, that we are experiencing a boom. A big one, in fact.

"An underlying growth trend can be thought of as something like mean sea level, except that the underlying growth trend is curved instead of level. It is an imaginary line more or less halfway between highs and lows. If we are above it—and we are, substantially—this fact almost certainly implies that sooner or later we will be below it. (I'll speak of a possible exception in a minute.) This is a second reason to look with caution toward the forthcoming sixties.

"Cycles throw some light on the sixties, too, but not as much as I would wish. I'll tell you why.

"There seem to be quite a number of medium length cycles in manufacturing production—which is a pretty good measure of business activity. Six years, nine years, 11 years, 13 years, etc. We know quite a lot about these cycles, and this knowledge helps somewhat in knowing the year-to-year changes. However, these medium length cycles do *not* account for the major booms and depressions. Even if we had *complete* knowledge of these medium length cycles, we wouldn't have the answer to your question.

"To tell you about the 1960's, as a whole, we need to know about the big long cycles—the cycles 30, 40, 50, 60 years in length. It is cycles of this length that caused the depression of the '30's with their bread lines and of the 1870's when so many armouries were built by the 'better elements of society' to protect themselves from the rioting destitute.

"But the trouble with big long cycles like this is that our record does not go back far enough so that we can know for sure that they are *rhythmic* and will repeat with more or less regularity. It takes about 10 repetitions (15 are better) to establish the significance of a cycle. And in manufacturing production, our figures go back for only about three 50 year cycles.

"Still, the combination of (1) a perfectly regular 36-year cycle, (2) a perfectly regular 50-year cycle, and (3) a perfectly regular underlying growth trend, so completely describes the main structure of what has happened that I have a hunch that these cycles are significant. At all events, this combination very beautifully accounts for the boom we have been experiencing.

"Now if these two cycles are the real McCoy, from now on they will be going downward for a good many years, both of them having just passed their peaks.

"On the other hand, don't forget that the underlying growth trend is still upward and doubtless will remain so for 50 years or more, even if the *rate* of growth is nowhere nearly what it was.

"So we have underlying growth trend up, and major cycles, if significant, down. The net of it, if my hunch is right, is a gradual and irregular falling off during the sixties. I'd characterize the decade to come as the 'subdued sixties' if I had to put it in a single word.

"From 1920 to 1940, we had much the same situation, only, at that time, the underlying growth trend was much stronger and, for the '20's at least, kept things going up in spite of the cycles.

"At that time the short cycles helped out, too. They, or accidental factors, caused the boom in manufacturing in the late '20's. The same thing could happen in the '60's, but probably to a less extent, as the underlying growth trend in the '60's will be only about half the rate of what it was in the '20's, and will operate against any short term cycle upsurge.

"On the other hand, remember that these long cycles that I have been speaking of will be *above* trend for at least the first half of the decade. I would doubt if we would have a real bang-up depression before the '70's, although the *late* '60's could be pretty rough.

"Awhile back I said there was a possible exception to the presumption that sooner or later we will go below the underlying growth trend as it has shown itself up to date. This exception arises from the bare possibility that the underlying growth trend has changed and that we really are in a new era. Underlying growth trends occasionally do change—copper production with the advent of electricity is an example, or carriage production when people started putting motors in them. It could be claimed that the forward surge of the '50's was the result of such a "rebirth" as it is called and not the result of cycles at all. It could be so claimed, but personally I do not believe it.

"It could also be claimed—with more reason, I think that, politicians being what they are, they will try to buy us out of the next major depression. They may, but if they do, it will cause runaway inflation, and this won't be too happy either.

"And finally, there is the matter of war. War of any size might throw all these calculations completely off. And the next five years are bad, cycle-wise, for international war.

"To summarize then: barring war, and ignoring the *very* remote possibility of a rebirth of our underlying growth trend, *caution* should be the watchword for the '60's. Underlying growth trend is going up at a less rapid rate than formerly. Just as we are now above trend, we are due, sooner or later, to be below it. And what little we know about cycles suggests that now may be about the time for this reaction to begin.

"On the other hand, growth is still strong even at a lesser *rate*.

"If my hunch about the cycles is right, a *major* depression would seem more likely in the '70's, and there is always the Devil to bail us out (at the price of our souls)."

Cordially yours,

Edward R. Dewey

Director

Research by Staff

WHAT'S AHEAD FOR COCOA BEAN PRICES

A SHORT TERM VIEW

BY G. SHIRK

Since the middle of 1958 the price of cocoa beans (Accra at New York) has been sliding downward. In so far as this general decrease is the result of a currently rather dominant 41.7-month cycle, the present downward movement should end around the early part of 1960 at about the 33 cent level. After that the price may turn up again.

Figure 1 below shows the actual price of cocoa beans by months since the middle of 1957 as a solid line. The average 41.7-month cycle plus an assumed underlying trend is shown as a broken line.

In examining Figure 1 remember that the cycle line represents an average situation—it is a generalization of past experience. The current actual movement of prices may or may not follow the average past experience. If actual prices do follow the cycle line, it will be in a general rather than in a specific manner. This is as much as we can hope for.

On the broken line representing the cycle and trend, a low is plotted at January 1960 at about 33 cents. This is a specific point on the chart, and it is a sort of dead center point; it locates a target or benchmark around which the actual price will vary, both in timing and in level.

The average cycle length, and the timing of the ideal highs and lows, and the average strength of the cycle are based on an analysis that covers the period from January 1923 through August 1959, excluding the war period of controlled prices.

During the 1923-1959 period, the average length was 41.7 months. The last ideal high came at April

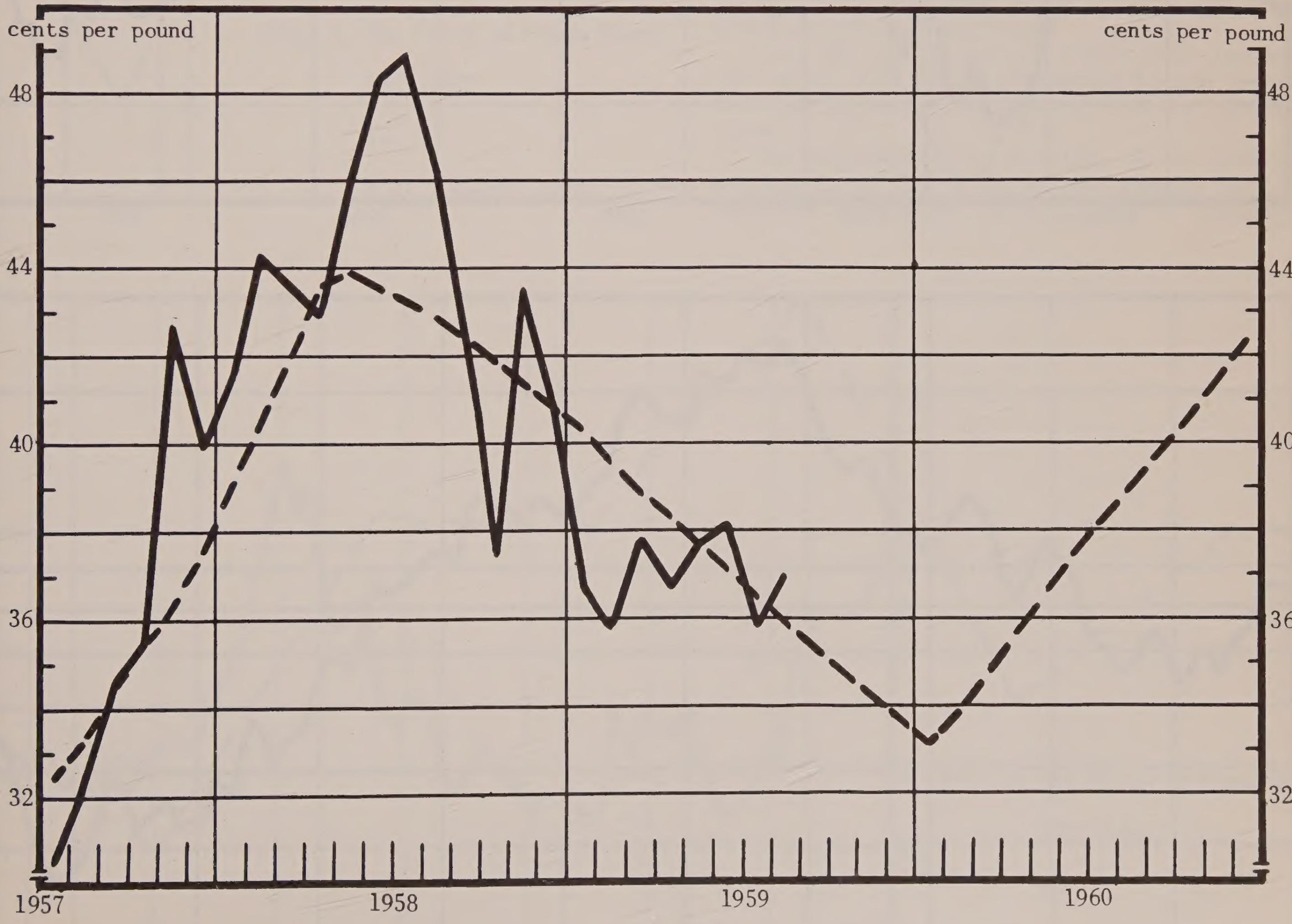
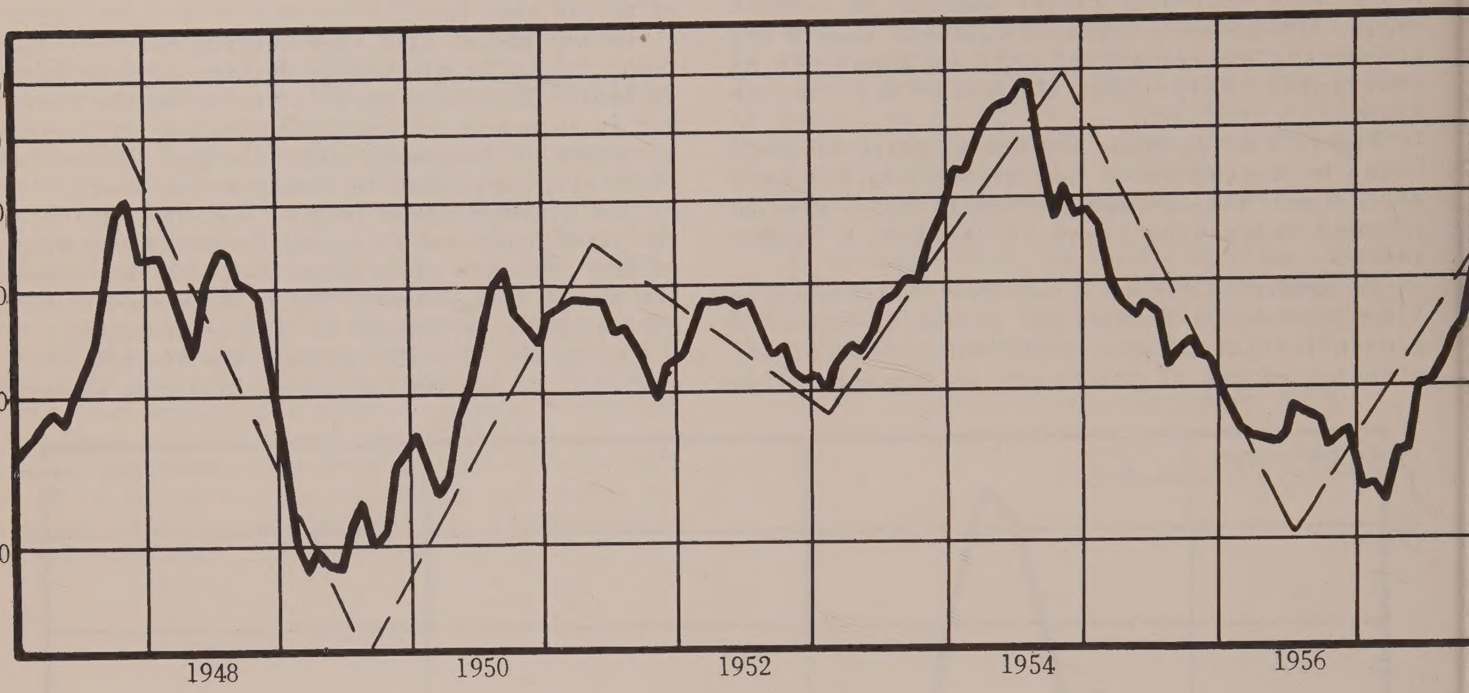


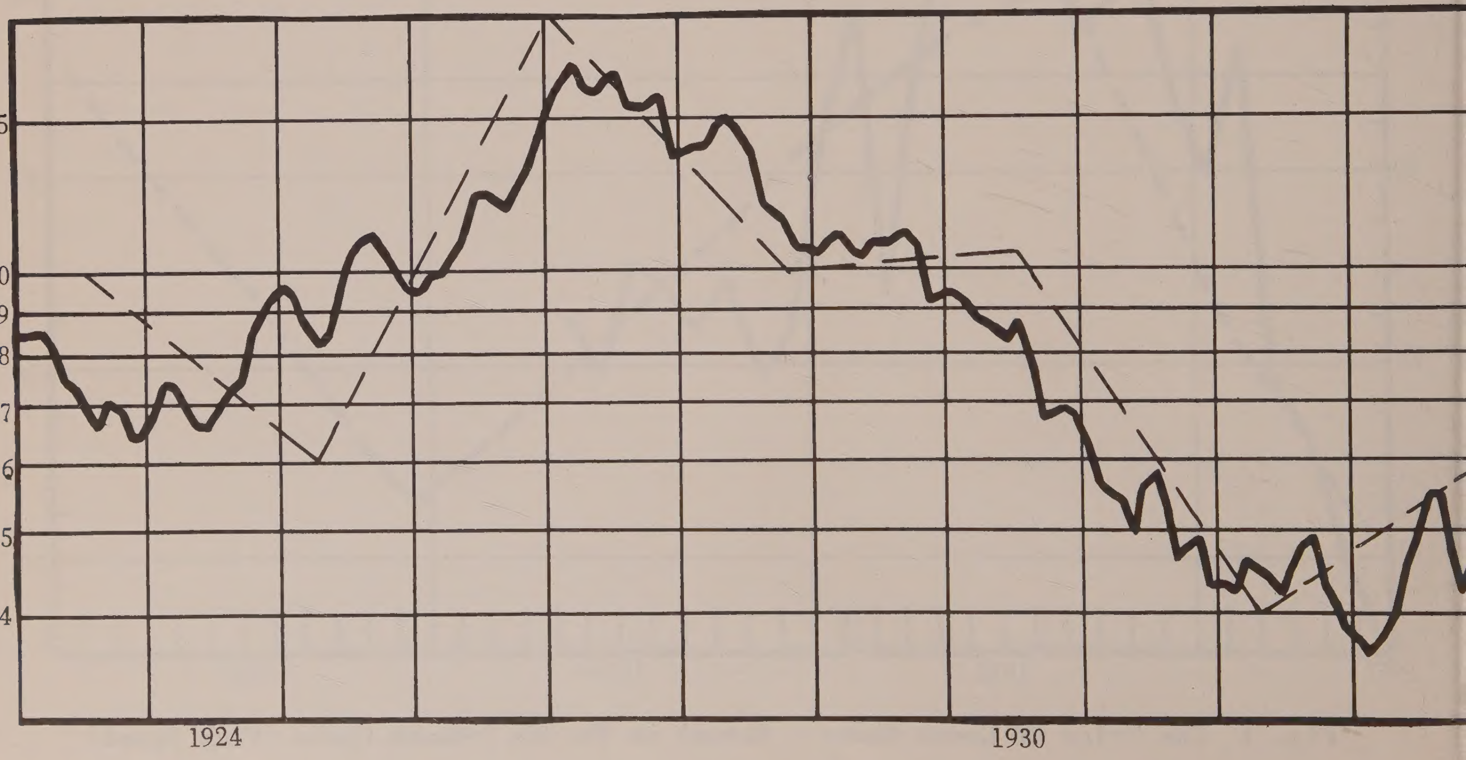
Fig. 1 The Price Of Cocoa Beans - Actual vs The 41.7-Month Cycle (Plus Trend)

1958 and the ideal low following that high is due in January 1960. The high following the January 1960 low is due ideally at October 1961. At the time of the highs, the cycle has an average strength 24.2% above trend. At the time of lows the cycle is 80.5% of trend. Do not forget that these figures are the average experience of this cycle over the 1923-1959 period.

The ideal cycle described in the preceding paragraph is diagrammed as the broken line on Figures 2 and 3 below. Here it is compared to the actual price of cocoa beans, first in the post war period in Figure 2, and then in the earlier period in Figure 3. In these drawings the ideal cycle is simply diagrammed on the actual price, without attention being given to the underlying trend—except visually.

An inspection of Figures 2 and 3 leads to two conclusions. Most obvious is the fact that the 41.7-month cycle has been more dominant since





World War II. In the 1923-1941 period, although the cycle is present (as our technical analysis shows more clearly than this picture), it is not nearly as apparent as in the 1947-1959 period.

The second point we notice from the charts is that the 41.7-month cycle appears sometimes to be strong and clear, and sometimes to be weak and somewhat obscured. Technically, this indicates the possible concurrent presence of another important long wave.

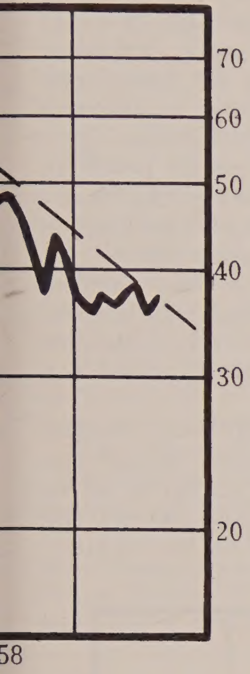


Fig. 2 **The Price of Cocoa Beans**

1947-1959

vs

A 41.7-Month Cycle

As a practical matter, we see that during the 1951-52 down leg of the cycle, prices moved sideways more than downward. Although figuring from the date of the ideal high to the date of the ideal low there was an actual decrease in price, I think the conclusion that the low in 1953 was a weak low is fair.

The cycle following the 1953 low was fairly prominent. But again in the 1958-59 period the down leg of the cycle appears to be as much sideways as downward, and we may be at a period of another weak low.

These conclusions are generalities based on an inspection of Figures 2 and 3. It is possible to make a more precise comparison between the actual prices and the ideal cycle as in the table which is given on the following page. This is probably the simplest sort of direct comparison we can make.

The table gives the actual price at the exact months which are ideal turning points on the cycle. During the 1923-1941 period in six out of ten times the cycle direction and the price direction was the same. This is hardly better than chance, and because of the small sample, could easily be just a chance result.

In the 1947-1959 period, however, in six out of six times the ideal cycle and the actual price moved in the same direction.

Over the entire period, 1923-1959, therefore, the price and the cycle moved in the same direction 12 out of 16 times. This is 75% of the cases.

The important fact, however, is the 100% match beginning in 1947. It is not likely that this happened by chance, although such a possibility

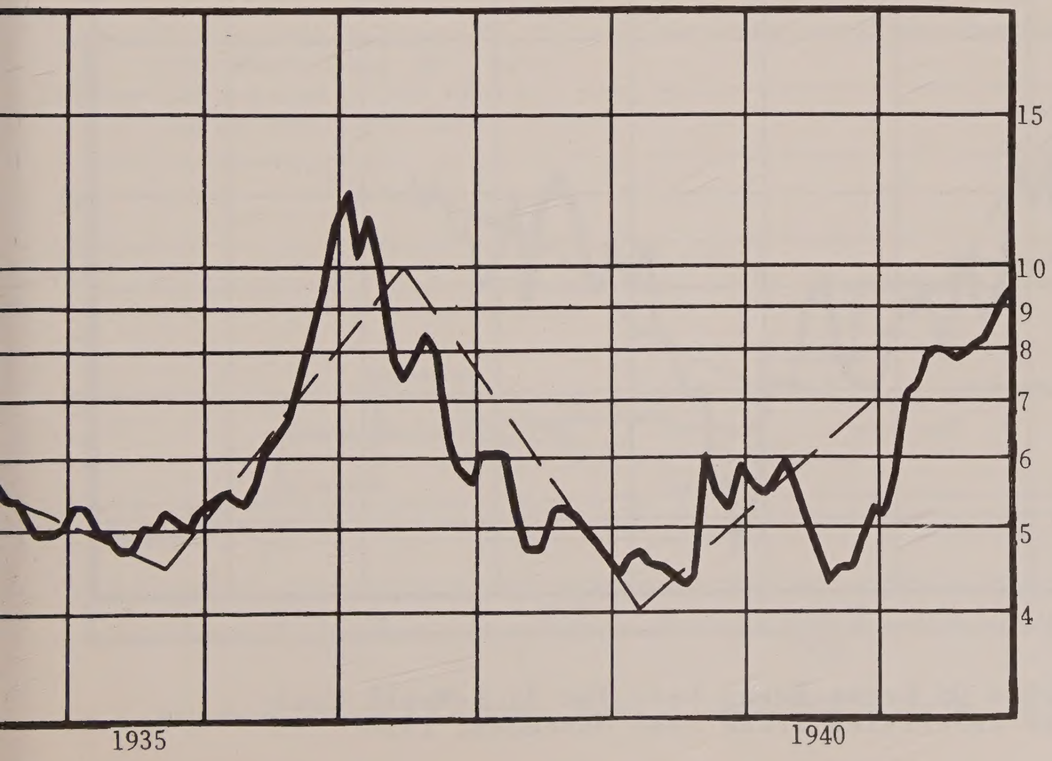


Fig. 3 **The Price of Cocoa Beans**

1923-1941

vs

A 41.7-Month Cycle

does exist.

The table follows.

Turning Points Ideal Cycle		Direction of Cycle	Actual Price	Direction of Price	Match
High	Jul 1923	Down	6.9 cents	Up	No
Low	Apr 1925	Up	8.1	Up	Yes
High	Jan 1927	Down	16.1	Down	Yes
Low	Oct 1928	Up	14.8	Down	No
High	Jul 1930	Down	8.7	Down	Yes
Low	Apr 1932	Up	4.5	Down	No
High	Dec 1933	Down	4.2	Up	No
Low	Sep 1935	Up	5.2	Up	Yes
High	Jun 1937	Down	7.4	Down	Yes
Low	Mar 1939	Up	4.7	Up	Yes
High	Dec 1940		5.3		
High	Nov 1947	Down	51.0	Down	Yes
Low	Aug 1949	Up	18.5	Up	Yes
High	May 1951	Down	38.3	Down	Yes
Low	Feb 1953	Up	30.0	Up	Yes
High	Nov 1954	Down	51.8	Down	Yes
Low	Jul 1956	Up	29.0	Up	Yes
High	Apr 1958	Down	42.9	?	?
Low	Jan 1960	Up	?		
High	Oct 1961	Down			
Low	Jul 1963	Up			
High	Apr 1965				

If we conclude at this point that the 41.7-month cycle has been dependable enough that we can use it in a forecast (tempering the forecast with common sense) then we can turn our attention to the mechanics of the forecast. You will recall that on Figure 1 the broken line diagrammed the 41.7-month cycle *plus an assumed underlying trend.*

The chart below, Figure 4, shows the manner in which we arrived at the underlying trend. The solid line gives the price *less the ideal cycle.* The dashed line is an average through this residual—it shows the general up and down direction of what is left when the cycle is removed from the figures. The trend is extended beyond September 1958 by hand.

At January 1960 the trend value is about 41 cents. At the low point on the cycle, the price in the past has averaged 80.5% of trend. 80.5% of 41 cents is 33 cents, the low value plotted on Figure 1 at January 1960. You can raise or lower the trend assumption as you see fit and apply the 80.5% to it to get whatever forecast follows.

I have deliberately raised the trend level in the immediate future (and consequently the forecast level) because of the personal conclusion mentioned above that this may be a weak low.

Because forecasting in this manner does involve guessing the trend—and other personal conclusions that have nothing to do with cycles—I hesitate to go too far into the future with an application such as this.

At the moment, (18 November 1959) the dashed line on Figure 1 appears reasonable. After the passage of a few more months, particularly if we get a definite low, we can revise and extend the forecast to cover the next high due on the cycle.

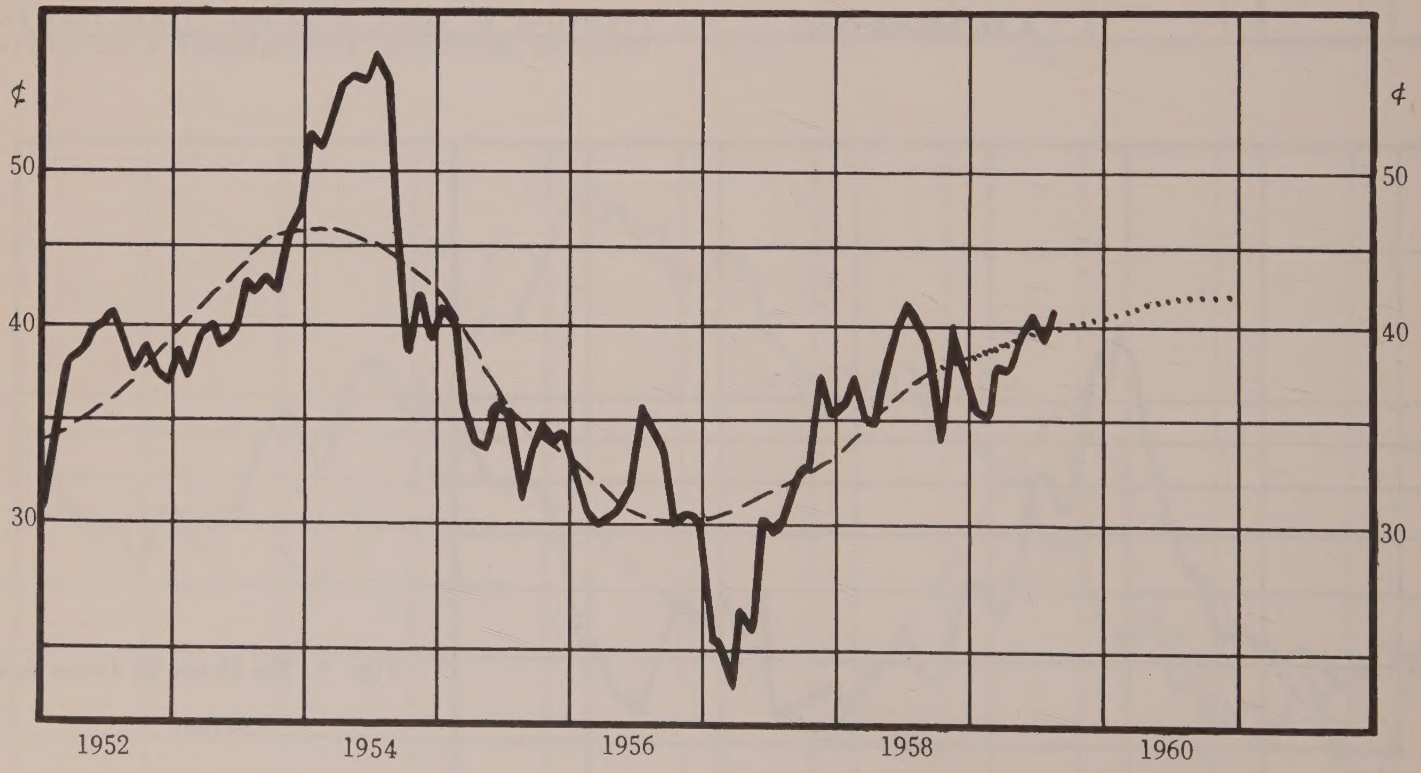


Fig. 4 The Price Of Cocoa Beans Less The 41.7-Month Cycle And The Underlying Trend Used November, 1959

MY STOCK MARKET FORECASTS AND HOW THEY CAME OUT

BY EDWARD R. DEWEY

My first attempt to forecast stock market prices by means of cycles was made in 1944. What was this forecast? How did it work out?

There is a basic difference between you and me in the way in which we evaluate results. *You* are interested in making money; *I* am interested in learning about cycles.

I am reminded of the ruminations of Archie, the cockroach. One day, as he was scampering through the holes of a Swiss cheese, Archie said to himself, "I wonder what a Swiss cheese would think about, if a Swiss cheese could think?"

Then, after a moments' reflection he answered his own question: "If a Swiss cheese could think, it would think about itself, because that's what all the rest of us do!"

As you and I have such different points of view I must answer the question—"How did this forecast work out?" in two different ways.

First, because there are so many of you and only one of me, let's answer the question from *your* point of view.

The forecast of 1944 was made early in the year with figures through 1943. It can, therefore, be thought of as made, constructively, on December 31, 1943. It combined 10 cycles which seemed to have been present in the Clement-Burgess Stock Price Index, 1854-1870, spliced to the Standard and Poor's Combined Stock Price Index, 1871-1943, 1926=100. The shortest of the 10 cycles that entered into the combination was 4.89 years long; the longest 21 years long. The combination of cycles was expressed in percentages above and below trend.

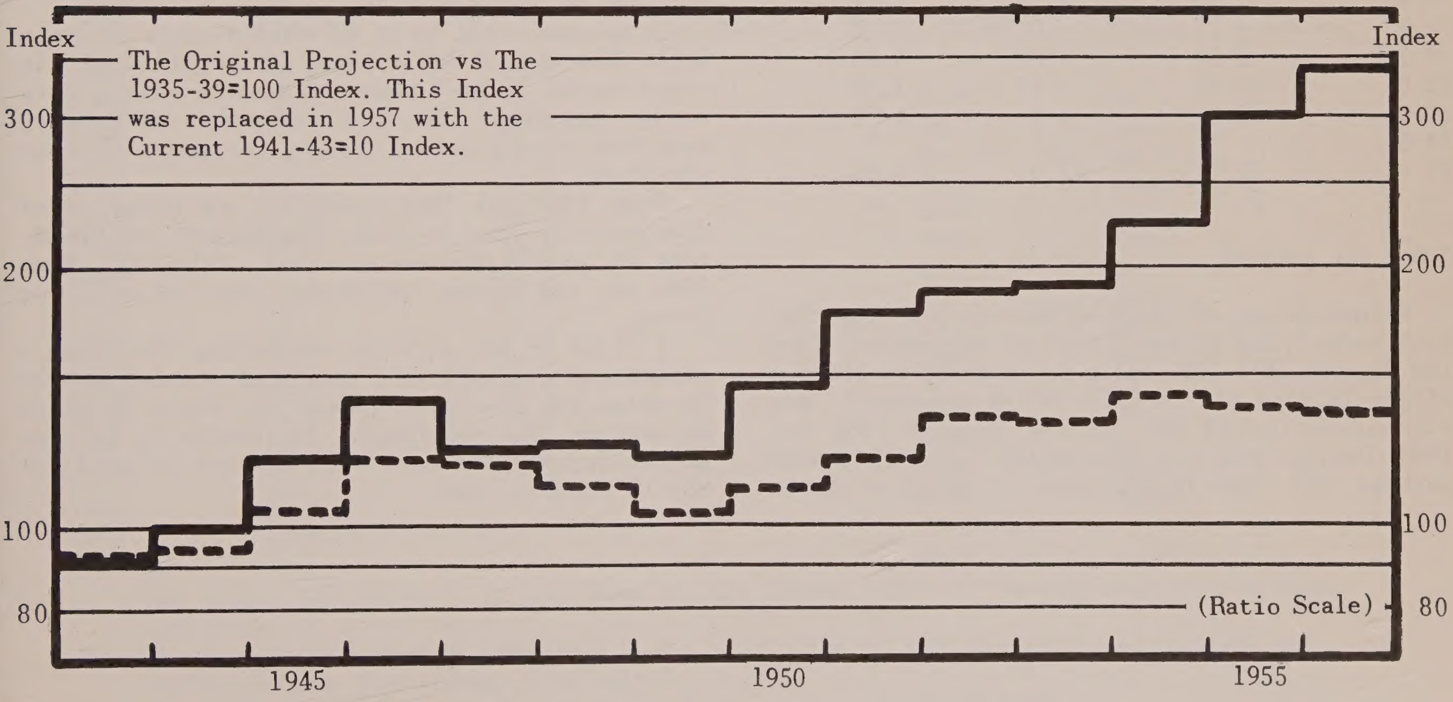
A chart of these percentages was made on January 25, 1944. Copies were distributed to a number of people. A copy of this original chart was published for you in *Cycles* for June, 1951.

To get an actual practical forecast these percentage values must be wrapped around an underlying growth trend. Different people would determine underlying growth trend in different ways. In 1939, the Cowles Commission for Research in Economics determined that the underlying growth trend for all stocks, 1871-1938, had been at the rate of 1.8% per year, compounded annually.

You can use any trend you like, but if, in 1944, you had projected the underlying growth trend of the Cowles Commission as determined by them in 1939, and had wrapped the cycles around it, your forecast, through 1959, would have looked like the broken line in Figure 1 below.

The projection called for an increase to 1946, a decrease to 1949, an increase to 1952, a decrease to 1953, and increase to 1954 and a decrease to 1960.

Now what happened? The market *did* go up until 1946, it *did* go down until 1949, it *did* go up



Standard & Poor's Combined Index - Comparison Of Actual With Original Projection

until 1952, it did *not* go down in 1953—it merely hesitated in its advance, it *did* go up from 1953 to 1954.

Except for the minor dip called for from 1952 to 1953, which did not materialize, the record from 1944 through 1954 was perfect. Your gains, over the period, would have been 185 times your losses.

From 1954 on, the projection called for a continuous decline. There was, it is true, a minor decline from 1956 to 1957, but on the whole the market went up. As you know, it is now nearly twice as high as in 1954.

In sum, the forecast of 1944 was excellent for eleven years; then it went sour.

By its very nature, a cycle forecast can be expected to get progressively worse as it extends out into the future. Errors multiply as time goes on. You must constantly revise your projections for the same reason that you must constantly adjust the steering wheel of your car, even on a straight road. Even the slightest error will get bigger and bigger as you proceed until, without adjustment, you will be in the ditch.

In 1955, with 11 more years of figures, I started to revise the forecast of 1944. This revision is not yet finished, but to date I have revised the trend as determined by Cowles in 1939, added one cycle (27 years long) and have audited seven of the 10 cycles included in the original work with the following results:

Original Length	Revised Length	Absolute Change	Percentage Change
4.89 years	*	*	*
5.50	*	*	*
6.07	5.91 years	-.16 years	2.6%
6.86	7.00	+.14	2.0%
8.17	8.17	.00	0.0%
9.2	9.18	-.02	0.2%
11.0	10.83	-.17	1.5%
12.0	12.8	+.8	6.7%
14.5	*	*	*
21.0	22.0	+1.0	4.8%
--	27.0	--	--

* Not yet audited

A combination of these eleven cycles, together with underlying growth trend as determined from the figures 1871-1957 calls for a crest in 1956, a slight falling off in 1957 (which occurred), and a continuation of the decline through 1958 and 1959 (which has not occurred) into 1960 and perhaps 1961 (the fullfillment of which we don't yet know about).

So much for the forecast from *your* point of view.

Now let's consider it from the point of view of the science of cycles. Was this forecast importantly better than one could get by pulling numbers out of a hat? If so, there must be something to the cycle determination.

From the cycle science standpoint, we must exclude the underlying growth trend. We don't want the fact of growth to bail out a poor cycle forecast, nor errors in the determination of the underlying growth trend to hurt a good cycle forecast.

How shall we measure success or failure? The best way would seem to be to see if, year-by-year, the cycle forecast was in the right *direction*. A monkey, pulling slips of paper marked "up" and "down" from a hat would hit it right half of the time. Was the cycle forecast any better?

In his first draw the monkey could be right or wrong (50-50). But to be right twice in a row would happen only once in four times [(1) wrong-wrong, (2) wrong-right, (3) right-wrong, and (4) right-right]. For the monkey to be right three times in a row would happen only once in eight times; to be right four times in a row would happen only once in 16 times, and so on.

What does the record show? The cycle forecast (*ex trend*) was wrong from 1943 to 1944. It called for a decline; the market, ex trend, went *up*. (*With* trend, the forecast went *up*. Here is a case where the upward underlying growth trend, added to the cycle, bailed out a bad cycle forecast.) Next year the cycle forecast was right. One right and one wrong is no better than you could get by chance. But from here on for the next nine times the cycle forecast was right. This could not have happened by chance more than once in 512 times.

I am sure that part of this result is pure luck. However, I don't think it is all luck. In other words, I feel that the record offers very convincing proof that the market has *structure*, and that projectable cycles are part of that structure.

From 1954 the 1944 forecast, ex trend, went down year-by-year to 1960; the market, ex trend; went up, except the one interval, 1956-1957. From 1954 on, the monkey could have done as well, or better.

I think we are safe in concluding that from a theoretical, as well as a practical standpoint, the forecast was very good indeed for about 10 years in advance, but not longer. It remains to be seen if the revised forecast will be equally good for the 10 years to come.

Forecast of 1944
vs
Standard & Poor's Combined Index

Practical Basis

Year	A 1944 Synthesis	B Cowles Commission Trend of 1939	C Combination (product) of A and B	D Actual Index 1935-39 =100 *	E Actual Index 1941-43 =10 **	Year-To-Year Change In Col. C (Forecast)	 In Col. D or E Actual	Match (+) Or No Match (-)
1943	93.3	100.0	93.3	91.9				
1944	92.6	101.8	94.3	99.8		up	up	+
1945	101.3	103.6	104.9	121.5		up	up	+
1946	114.1	105.5	120.4	139.9		up	up	+
1947	109.4	107.4	117.5	123.0		down	down	+
1948	101.9	109.3	111.4	124.4		down	up	-
1949	93.0	111.3	103.5	121.4		down	down	+
1950	97.8	113.3	110.8	146.4		up	up	+
1951	103.7	115.3	119.6	176.5		up	up	+
1952	114.4	117.4	134.3	187.7		up	up	+
1953	111.2	119.5	132.9	189.0		down	up	-
1954	116.2	121.7	141.4	226.7		up	up	+
1955	111.0	123.9	137.5	300.0		down	up	-
1956	107.7	126.1	135.8	341.5	46.62	down	up	-
1957	98.5	128.4	126.5	**	44.38	down	down	+
1958	88.0	130.7	115.0		46.24	down	up	-
1959	78.3	133.1	104.2		***	down	up (e)	- (e)
1960	62.7	135.5	85.0		***	down	***	***

Theoretical Basis (Both forecast and actual ex trend)

Year	A 1944 Synthesis	B Actual Index 1935-39 =100 * % of Trend (1)	C Actual Index 1941-43 =10 ** % of Trend (2)	Year-To-Year Change In Col. A (Forecast)	 In Col. B or C Actual	Match (+) Or No Match (-)
1943	93.3	73.3				
1944	92.6	78.2		down	up	-
1945	101.3	93.5		up	up	+
1946	114.1	105.4		up	up	+
1947	109.4	91.0		down	down	+
1948	101.9	90.4		down	down	+
1949	93.0	86.3		down	down	+
1950	97.8	102.3		up	up	+
1951	103.7	121.1		up	up	+
1952	114.4	125.9		up	up	+
1953	111.2	124.5		down	down	+
1954	116.2	146.6		up	up	+
1955	111.0	190.1		down	up	-
1956	107.7	212.3	208.4	down	up	-
1957	98.5	**	194.1	down	down	+
1958	88.0		197.7	down	down	+
1959	78.3		***	down		
1960	62.7			down		

* The index 1935-39=100 is the same as the index 1926=100 except that it has been converted to a new base.

** The Standard & Poor's Combined Index, 1935-39=100 was discontinued in 1957 and replaced by a new index, 1941-43=10.

*** Not yet available.

(1) Straight line, 1871-1955.

e Estimated.

(2) Straight line, 1871-1958.

31-YEAR CYCLE OF THE MOON IN PERIGEE

Mr. Hector Wolfe of New York City has found a 31-year cycle of the moon in perigee. To be more explicit, he has found that there are 11,324 days and 23 hours between the times when the order of the appearance of the moon in perigee follows the same pattern of irregularity.

The moon is said to be "in perigee" when it comes closest to the earth during its orbit—the orbit being of course elliptical rather than circular. A schematic drawing of the earth and moon and perigee is shown below.

The time that elapses from one perigee to the next varies—the intervals are not constant. Thus, although the moon comes into perigee 13 or 14 times in one calendar year, in one rotation it may travel for 27 days and 4 hours, in another 28 days and 5 hours, or 28 days and 10 hours. The time interval varies from between 24 days and 15 hours to about 28 days and 14 hours, and averages 27.554618

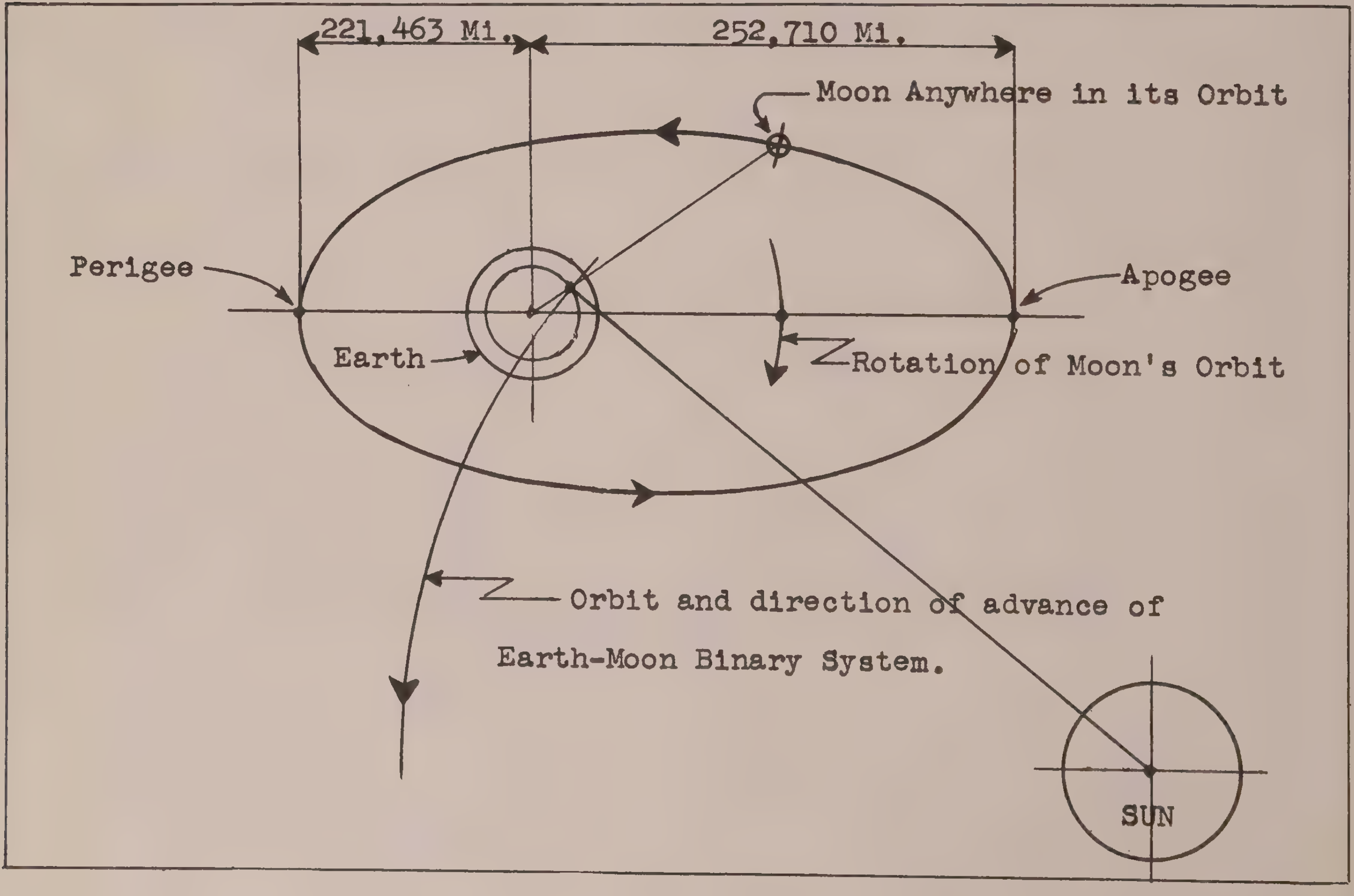
Wolfe has found that there is a cycle to this irregularity of the appearance of the moon in perigee, and that this cycle is 11,324 days and 23 hours long. To do this, Wolfe went back over the records of the time of perigee to 16 January 1836. Over this period the cycle has repeated four times, and each of the four repetitions covers the same astronomical time length.

That is, after a period of slightly over 31 years (411 successive perigees), the inequalities in the duration of the travel time of the moon reappear in the same progressive order.

Wolfe's article about this discovery is in the October 1959 issue of the *Journal of Cycle Research* (Vol. 8, No. 4). The picture below is reproduced from that article.

·From the table in the article we learn that (after the last perigee in 1959—29 December at 01 hours) we will be following the same sequence of irregularity of the appearance of the moon in perigee as occurred beginning 1-1-0 in 1836, 1867, 1898 and 1929.

The main contribution of Wolfe's work is that it gives us one more fact about the physical environment of the past and the future.


221,463 Mi.
252,710 Mi.
Moon Anywhere in its Orbit
Perigee
Apogee
Earth
Rotation of Moon's Orbit
Orbit and direction of advance of Earth-Moon Binary System.
SUN

NOTES ON CYCLES IN DREAMS

By Jack A. Dorland

"The Stuff That Dreams Are Made On."

The Popular Notion	The Scientific Fact
Most People *Think* That:	The *Truth* is That:
1) Some nights we dream; some we don't.	1) Almost all of us dream every single night, whether we are aware of it or not.
2) Some nights we dream steadily the whole night through.	2) Periods of dreaming are *not* continuous, but occur at intervals throughout the night.
3) When we are physically, mentally, or emotionally upset, we are most likely to dream.	3) Dreaming is a perfectly normal, natural component of almost every night's sleep.
4) Everything can happen in a flash in dreams—even entire long dreams.	4) It takes about as long for an action to be performed in a dream as in reality.
5) Tossing and turning in one's sleep is a clear sign that one is dreaming.	5) Our bodies are almost motionless during dreams. Body movements are inversely coordinated with dreams.
6) We sleep most deeply during the middle of the night.	6) Our sleep during the first hour of the night is regularly our deepest sleep.
7) We dream irregularly throughout the night, for random lengths of time.	7) We dream at *regular* intervals throughout the night for *predictable* lengths of time.
8) Women dream more than men; artists more than dullards.	8) Dreaming is a matter of cycles and sleep rhythms, not of sex or temperament.
9) Some people dream a lot more than others.	9) One adult dreams about as much as another.
10) Some of us dream in Technicolor.	10) Practically all of our dreams are in a muted black-and-white. So-called Technicolor dreams are rare and probably consist of a single drab tint.
11) We dream most during our deepest sleep.	11) We dream in the lightest phases of our sleep; we seldom if ever dream in any other stage of sleep.
12) Dreams are beautiful—at times almost divine.	12) Dreams represent low grade mental activity, comparable to the behavior of the drunken, the drugged, or the delirious.
13) We sometimes solve our mental problems quite successfully in our dreams.	13) In our dreams we possess only poor analytical ability; we are not communicating with reality, and cannot reason successfully.
14) We often dream the same dream over again.	14) No dream is ever exactly duplicated.
15) We dream many different unrelated dreams throughout the night.	15) Dreams on one and the same night are more often related to one another than not. One theme often persists throughout the entire night.
16) We often remember our dreams in great detail.	16) Dream recall is generally undependable.

NOTE: THE SCIENTIFIC FACTS ARE BASED ON THE WORK OF DR. WILLIAM DEMENT AND DR. NATHANIEL KLEITMAN.

Technical

ADVENTURES IN FORECASTING

PART VI: ANOTHER EXAMPLE

BY H. K. RUTHERFORD

Editor's Note: The previous articles in the series by Rutherford gave rise to many queries. It is hoped that many questions will be answered by this additional article. G. S.

The data here used is that of the March, 1959 option in Cocoa futures—one of the most volatile series that could have been chosen. The accompanying graph shows the weekly range and closing price from May 30, 1958 until near the expiration of this option.

The reader may be dismayed by the number of lines on the chart, but the discussion will clear their purpose up. Basic trend lines are shown full and parallels thereto broken, with intersects as small circles. What is shown is only part of what could have been drawn had it been desired to go more into detail.

In the earlier articles, the techniques involved in forecasting the timing and the level of developments were discussed fully. Briefly, it may be mentioned that intersects predict danger *dates* when some cyclical objective may be reached and when the move immediately preceding is likely to reverse unless the curve is at a resistance level, when a break-through is probable. Parallels are objectives, in succession, if earlier ones are passed. No invariable relationship between timing by intersect and level by parallel exists, hence forecasts involve judgment in comparing these two seemingly independent factors.

In previous reports, predictions based on one leg of a cycle and on the complete cycle were discussed. Both are illustrated here but results only will be mentioned, leaving it to the reader to pursue the matter into the earlier articles if interested.

The Complete Cycle

Starting at the climax top, A, at the origin of the graph, presumably got by preceding forecasts, we have, 7 weeks later, a complete cycle which appeared of sufficient importance to our purposes to warrant prediction. The cycle-trend across tops was drawn and on it, far ahead, were spotted intersects *when it reached the level of the climax turn within the cycle as well as the level of various K points computed at and spotted below this climax.* As will appear, each intersect forecast a danger date when care would be needed in reviewing the then current situation.

During the week of Oct. 3, an important intersect matured and the curve had then reached what appeared to be the extreme K parallel to be expected from the cycle used in making the forecast. In this case, it appeared clear that the climax in reaction had been seen, but in many others the relationship of timing and level will be found less conclusive. As of date C, then, the preceding would have been the forecast.

Anticipating somewhat, we follow along to the next intersect on this cycle-trend and find the curve then *at* the intersect and probably ready for a break-through. This occurred and the question arose when and at what level the recovery climax would appear. For this problem we now have available a new complete cycle between the bottoms, B and D. A *parallel* to this new cycle-trend, drawn through the opposite extreme, now has an intersect obtained from D correctly predicting the date of termination of the recovery move. Had space been available, additional intersects on this parallel could have been obtained to good advantage by the use of K points below D.

To predict the recovery *level,* parallels to the new cycle-trend could have been drawn through K points computed at and spotted far above D. as in the procedure used at B. Again, these would have been broken in succession until the intersect date was reached when it could be concluded that the extreme top had been seen. In this particular case, in view of the vigor of the rise, one would have been justified in concluding that the level of A was the probable objective, but such a development is not invariable nor is such an earlier turning point always the limit.

After the E climax, a new cycle soon developed and application of the usual techniques enabled us to carry on predictions for the final move down. For interim detail along the way, single move forecasts would have been useful but are not shown.

The Single Moves

So far, only complete cycles have been used for the predictions but occasions will arise when one leg may be employed. The latter, although applicable to moves of any length, to avoid confusion here, will be illustrated only in connection with the long moves from A to D and from D to E.

Taking the A-D move, the overall time occupied is divided into halves (quarters may be used) horizontally from A and, through the two points, parallels to the A-D line are drawn. Thus only the extremes of the move are considered, interim fluctuations being disregarded. On the 1/2 way parallel, we have an intersect from D and shown at F, obviously dating the 1/2 time projection of A-D. The usefulness of this is that, at this date, the curve will, *in a majority of cases* be at or near the parallel drawn through the full projection. This level, of course, is 1/2 the vertical range of the A-D move, hence we have the useful conclusion that the reversal of an established single move may generally be expected to carry at least half way back in about half the time taken by the move. In other words, up to this point there is a strong probability that the cycle being made will be symmetrical as far as timing is concerned. But there is no guarantee that the curve will not eventually exceed this objective—only that it is the minimum ordinarily to be expected and where caution is advisable. As usual, intersects on these parallels forecast danger dates and the parallels themselves are objectives of an approaching curve.

In this particular illustration, the expected level at the date was exactly reached, although the curve had been far above and had to react to meet this objective and then promptly reversed.

In both the A-D and D-E moves, the full-time parallels were broken after a little hesitation, illustrating that these were danger levels.

In connection with single moves, qualifications were discussed in earlier articles.

Summary

The method here visualized simply projects ahead, by convenient procedures, past developments in the data in the belief that two seemingly independent aspects, timing and level, of such developments will repeat in some detectable way. Application to a great variety of curves discloses relationships between these two aspects which are so common as to be regarded as high probabilities. These are taken as forecasts. At appropriate intervals dated by intersects, realistic action is compared with forecast to disclose indications of continuing strength or of developing weakness in the current picture and for making new predictions.

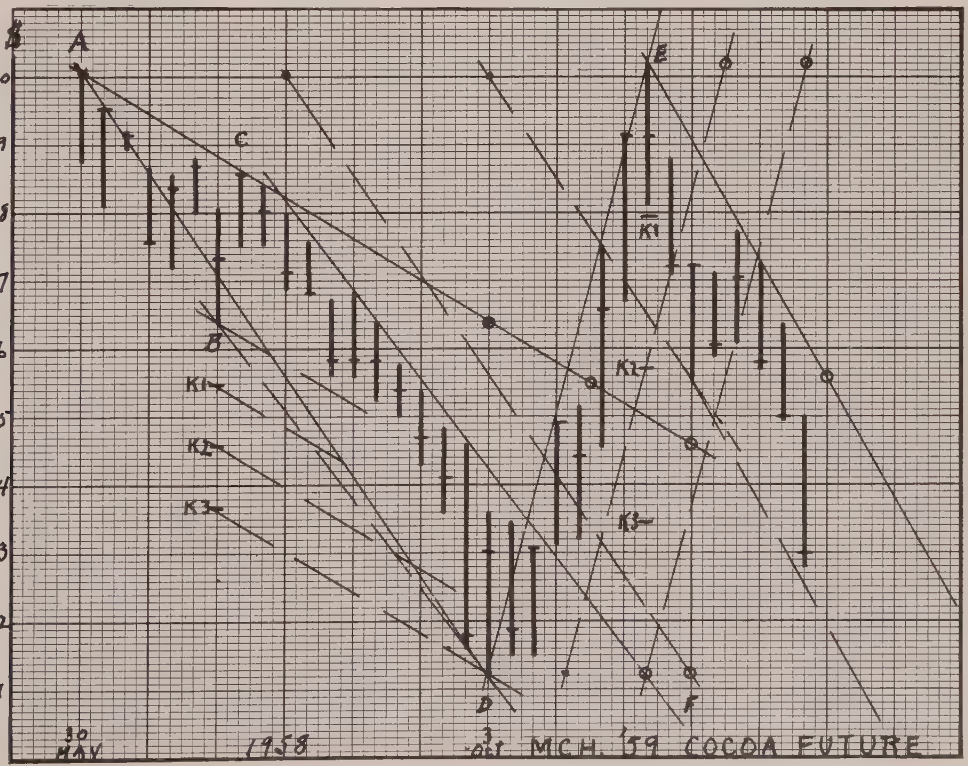
No limit is placed on the time-length of the cycle or the single move to which the method is applicable—days, weeks, months, years—hence it may be used in such detail as to be more confusing than useful, but preferably on longer records to maintain perspective. But the detail will always interpret and agree with the longer results and, when needed, the two may well be employed together.

Finally, complete-cycle forecasts, when available, are adequate for most purposes, single moves being used to provide interim predictions or where the other may not be available.

This example, although chosen at random, may be deceptive in giving the impression that forecasting will always be simple and conclusive. Such is not the case, for any other example would bring out a different set of relationships. By 20-20 hindsight, any method of prediction can readily be shown valid for the past, but the crucial test is if intelligent use can provide reliable forecasts. Despite the results shown here, application to other series will often give ambiguous results and more care than here will be needed to determine strength or weakness.

The inconstant relationship between timing and level predictions and the implications for realistic developments to follow make codification impractical, hence this method gives no definitive answers to forecasting. It does, however, point out certain relationships which, in a large number of actual cases, have proved important.

The significance at any given time is a matter of judgment, backed by observation of the implications of such a relationship in the past. There appears no alternative for the user other than to learn to evaluate the information provided by the techniques. The task is less difficult than may appear and well worth the effort.



Letters to the Editor

THE GEISINGER INDICATOR

Dear Mr. Dewey:

May I ask a question regarding (the Geisinger Indicator)?

In the September 23, 1959 Forecast, Viz:-

May - 153 - 5.0 - 2.67 - 7.67 - January 1960

All are "up" from the previous month. The July and August seem on the down swing. Does this indicate that March and April 1960, are probably destined to see a sell off of the general economy and the Dow Jones in particular? The reports never definitely say what the interpretation should be for us, who are not too adept at figures and statistics. A definite statement does not necessarily indicate a guaranteed result, but should indicate a prognosis of what may be expected if the results follow the usual.

Thank you for an explanation.

Pasadena, California R. H. Stanton

Comment: In regard to the Geisinger Indicator: it has nothing whatever to do with stocks. It refers only to industrial production. Industrial production is the quantity of *things* produced in the United States. Industrial production and stocks do *not* go up and down together.

The fact that the R. R. B. Index of Industrial Production in May, 1959 was up from April, 1959 merely means that more things were produced in May than in April. This fact by itself throws no light on the future.

The fact that the F. R. B. Index of Industrial Production was down for July and August is totally a reflection of the effect of the steel strike. As such, it throws no light on the future.

The fact that the Geisinger Indicator was up in May was a good sign and suggested that industrial production was likely to be good into 1960, barring strikes.

The fact that the First Difference Indicator was up merely meant that the economy was surging forward faster from March to May, 1959 than from February to April, 1959. It went up six points from March to May, only five points from February to April. The fact that things are booming is always good, but also always carries a slight note of caution, for what goes up must come down.

The decline of the First Difference Indicator in June and July means that in June the *rate* of growth was slackening; industrial production often slacks its rate of growth about eight months before a peak. *Except as this slackening off of the rate of growth might be the result of strikes,* it introduces a note of caution for the prospects for the spring of 1960. However, in this instance I think that the decline of the First Difference Indicator was *solely* due to the steel strike, and therefore that it meant nothing, one way or the other, relative to 1960 business.

The Modified Geisinger Indicator is merely the sum of the other two Indicators. The fact that it was up is a good sign for early next spring, (barring strikes), and showed underlying strength.

The little wiggles of the Indicator do not usually mean anything. It is only the big broad sweeps that count. When the Geisinger Indicator, going down, cuts -2, it is a real danger signal; when, going up, it cuts +2, it is a real green light—or at least it has been in the past.

E. R. D.

CYCLES OF THE UNIVERSE

A member sends a clipping "Telescope Probing the Age of the Universe" from the New York Times.

Dr. Allan R. Sandage, an astronomer at Palomar and Mount Wilson Observatories advances the theory of an alternating expanding and contracting universe, with the cycle of the pulsation covering many billions of years.

Sandage has reported on studies made for the past decade with the 200-inch Hale telescope on Mount Palomar. As a result of this work the astronomers now estimate the age of the earth at from 7 to 13 billion years, which (for the first time) is consistent with the geologists estimate based on the decay of radioactive elements.

The astronomers are attempting to find out if the universe is expanding at a slower rate than formerly. This fact, if proved, would support the pulsing cycle theory. If an explosion started the present universe moving apart, the combined force of gravity might slow the movement down until it eventually reversed, and then finally collided and exploded again.

GOLD

Dear Mr. Dewey:

I continue to suggest that where you go wrong is that you look upon economics as a pure science, a mistake all economists make. In fact I now realize that one cannot do so, and that it can only be done in conjunction with a study of philosophy, psychiatry, history, yogi, and nature cures.

As a result of these browsings in my library on these subjects over the last ten years, I have come to the conclusion that the problems of your country are moral and spiritual not economic, and that by trying to cure this materialistic age by economic means will surely end in disaster.

For this reason I have no hesitation in forecasting that America is on the verge of the biggest economic and financial crash in history.

Throughout history people have always said "it's different this time," in fact the only thing that *never* changes is the illusion that "great changes" are taking place, be they "The South Sea Bubble," Laws Mississippi and paper money millennium, or the Keynesian claptrap, the majority always fall for the collective mass mania of the time, whilst the enlightened minority see the inevitable tragedy approach.

As you are in the fortunate position of being allowed to buy bar gold, or gold certificates, via the Toranto Stock Exchange, and the Bank of Nova Scotia, I am surprised you prefer "greenbacks," which will become worthless sooner than most people think. Dr. Pick's pronouncement about the seriousness of the American gold reserves, (or rather the lack of them!) had all the urgency of the proverbial fire alarm at a children's tea party.

You would enjoy reading Dr. Franz Pick's immensely interesting paper entitled "America's Unpleasant Gold Problem."

County Sligo, Ireland Joseph Benjamin

THE RESEARCH PROGRAM

I am of mixed emotions. If everyone knew about cycles and used them, I would loose much of my present advantage. I also wish, privately, that I knew all the additional facts that there are to know about cycles. . .I know many things about cyclical behavior that I would not tell you or anyone else. It cost me too much to learn. . .

Basic research must be done by a gifted and dedicated person. It is not something that can be bought in a dime store by the yard. The amount of money spent is not related to the results in any direct manner. . .

* * *

How can a goal be set up when the end we are seeking cannot be defined with too much clarity? It follows that the modus operandi cannot be predetermined. Each hinges upon the other. Consequently, the goal, as such, should be quite broadly defined, for if "truth" is to be found, she will have to be followed over much strange and new terrain. It is my considered conclusion that thus far in cycle research we have been engaged in treating effects as causes and not going beyond into primary causes.

* * *

First, there is no question in my mind but that you should make every effort to carry out as penetrating a program as possible. . .

However, I cringe somewhat at the repetition of the word "scientific" in your letter. A necessary word, no doubt, but one which I have learned is all to often painfully over-rated. The science of our present culture (I use this word in its modern sense) does not appear to me to be particularly well orientated for a field which is, in its way, about as offbeat as are Doctor Rhine's studies at Duke. . .

John Nef, at Harvard, has drawn a sharp distinction between the scientist and technician, emphasizing the fact that modern progress is largely confined to the realm of technology built upon the intuition and the genius of true scientists, whose interpretations date back many years. A field such as cycles demands the intuition, the genius of the scientist, and can, I fear, never get very far on the efforts of the technician, a man who utilizes rather than creates. . .

It is my earnest hope that your investigation will proceed. . .

* * *

Certainly your project is as worthwhile to our society as certain television plays and other artistic efforts which I have noted and further, these are supported by philanthropic funds!

* * *

There is no doubt about my being favorable to your plan, but I don't see how you can carry it out for $20,000. That's only a salary for one good person. I think that to do the job the way it should be done, you should have a million dollars.

* * *

It would be wonderful if an integrated scientific research program could be developed that would result in determining the cause of cycles in various areas of economic and social life. If a basic research program in this area could be developed for as little as $20,000 a year for three years, I would think it almost criminal not to attempt to raise such funds.

* * *

I've been wondering how you've been able to turn out such good work at so small a cost.

* * *

I believe such a program is decidedly in the public interest and will eventually throw great light on a field which admittedly is known more for its fantasy than fact by the public at large.

* * *

In my opinion, the integrated scientific research program which you outline is desirable. I would put primary emphasis on the publication of research already completed.

It is as a rule not desirable to embark on a basic research program too deliberately; by this I mean that one should not set aside money and assign somebody to start basic research, say, next Monday morning. This is the way a lot of basic research is done, and the results are almost uniformly poor. The primary requirement is the availability of the data; then somebody, somewhere, will have an idea and he will then be able to do some basic research. It is usually futile to select the man and then expect him to have ideas. Research by others is stimulated by the publication of the data.

The Cycle Round-up

JANUARY 1960

For those of you who are following any of the series we review from time to time in this section, the recent figures are reported below.

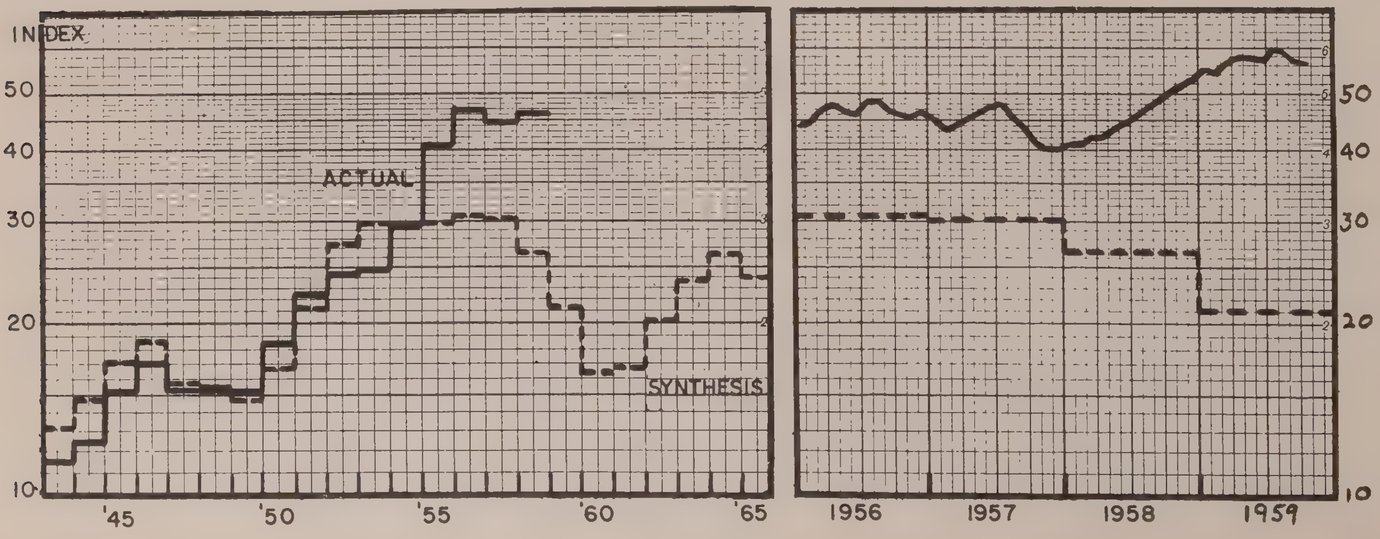
LATE FIGURES

Series	Unit	Month	Amount
Aluminum Production	Thousand tons	Sep	168.2
Automobile Factory Sales	Thousand cars	Sep Oct	229r 508p
Bond Yields—Moody's; Domestic Corporate	Per cent	Oct	4.87
Copper Prices	Cents per pound	Oct	32.58
Cotton Consumption	Thousand bales	Sep	863[1]
Liabilities of Business Failures—Dun & Bradstreet	Million dollars	Oct	50.4
Oats Prices—No. 3 White, Chicago	Cents per bushel	Oct	74.0
Sunspot Numbers	Numbers	Oct	106
Unemployment	Per cent	Oct	4.67

p - preliminary; r - revised; 1 - 5 weeks

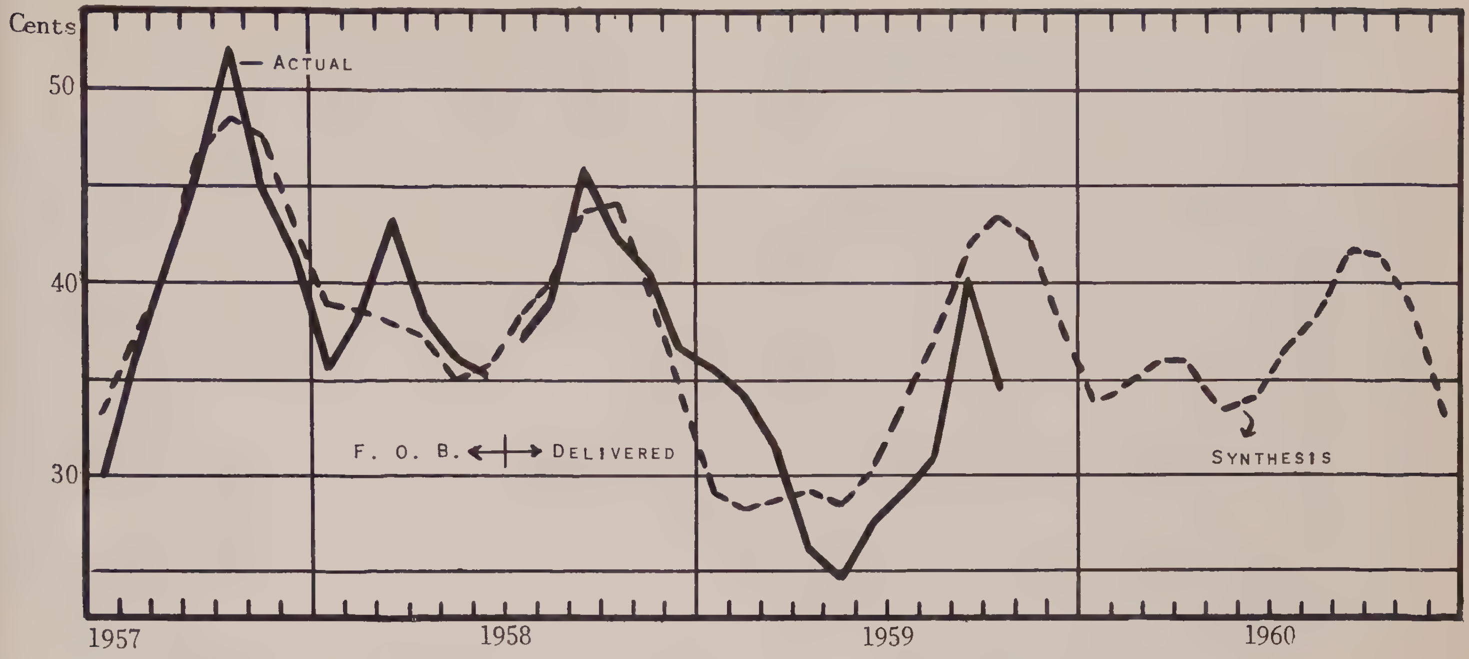
STOCK PRICES

Standard & Poor's Combined Index of Stock Prices was 56.92 in October. This figure is preliminary.



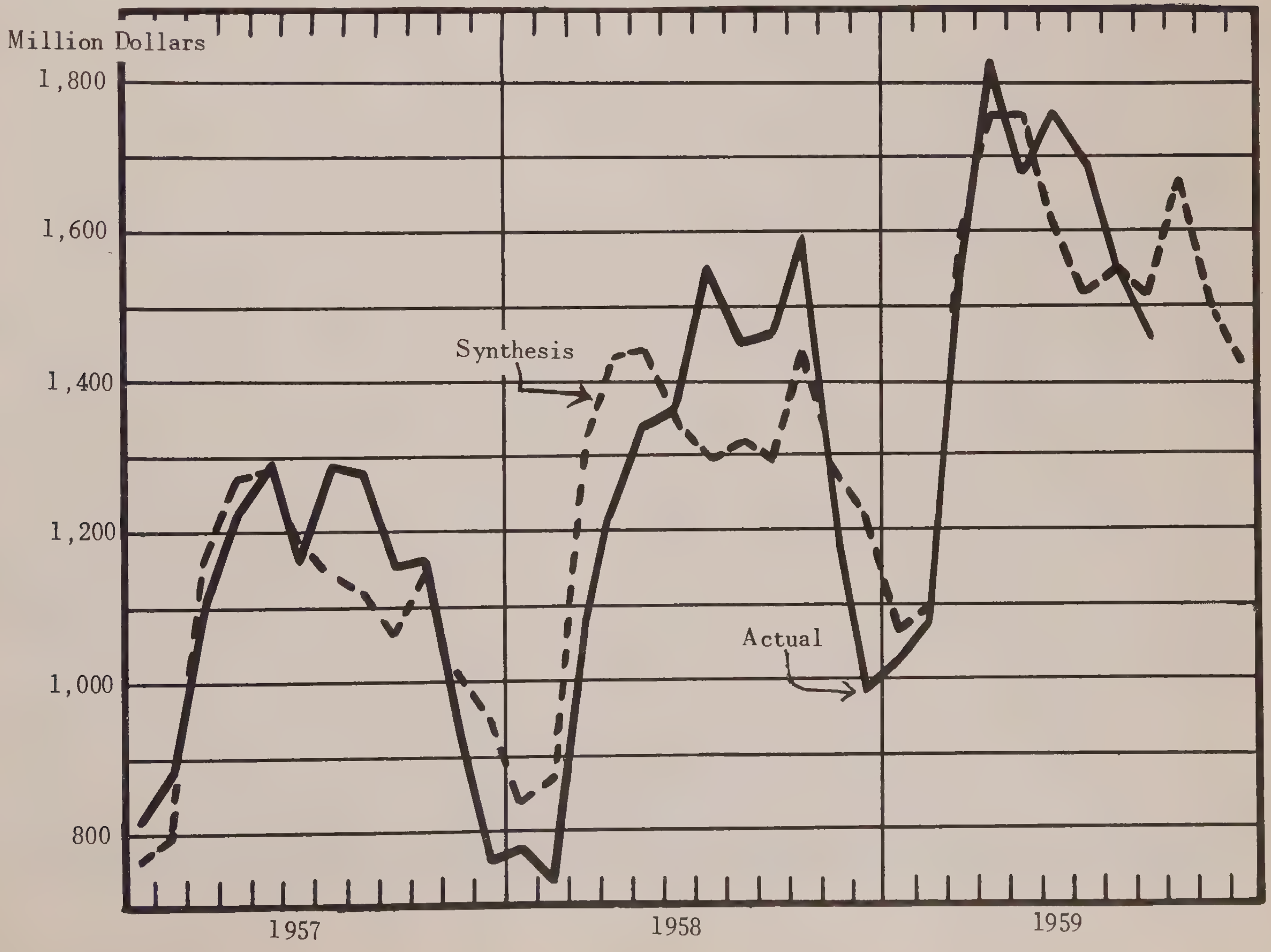
EGG PRICES

The price of eggs, wholesale, extras, large, at Chicago, in October was 34.2 cents per dozen.



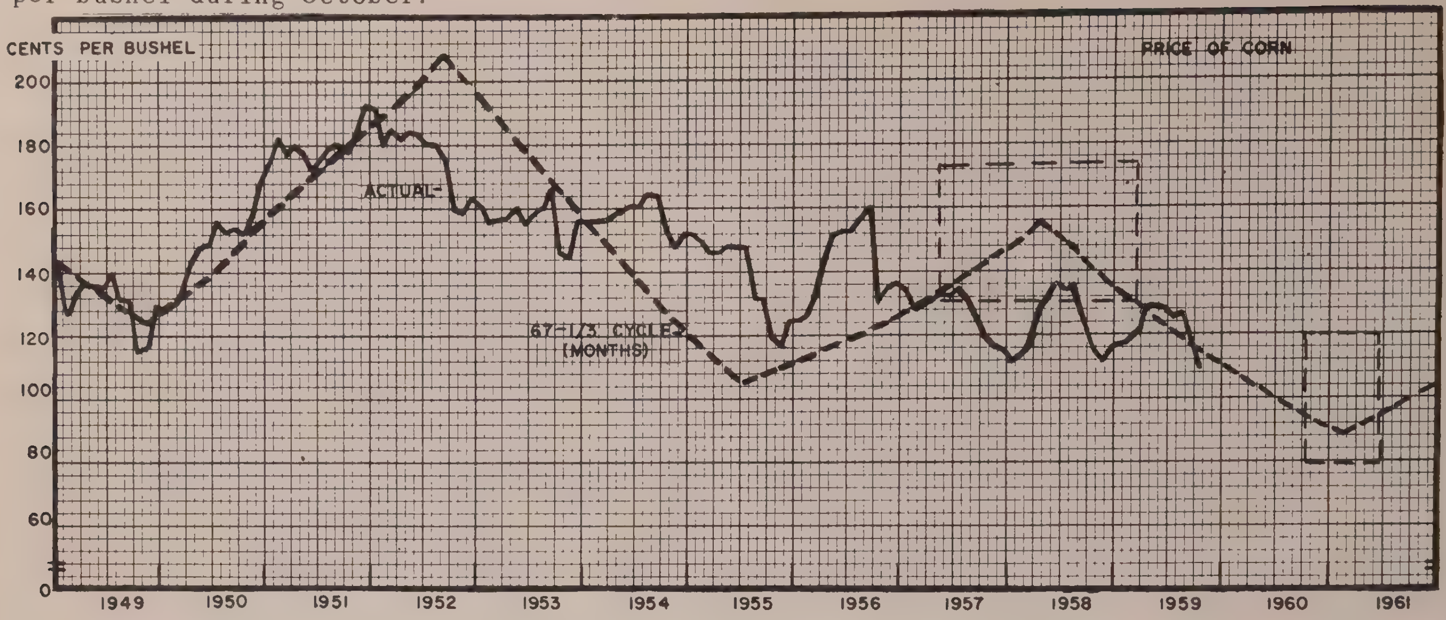
RESIDENTIAL BUILDING

Residential construction contracts let in September amounted to $1.466 million dollars, according to F. W. Dodge Corporation.



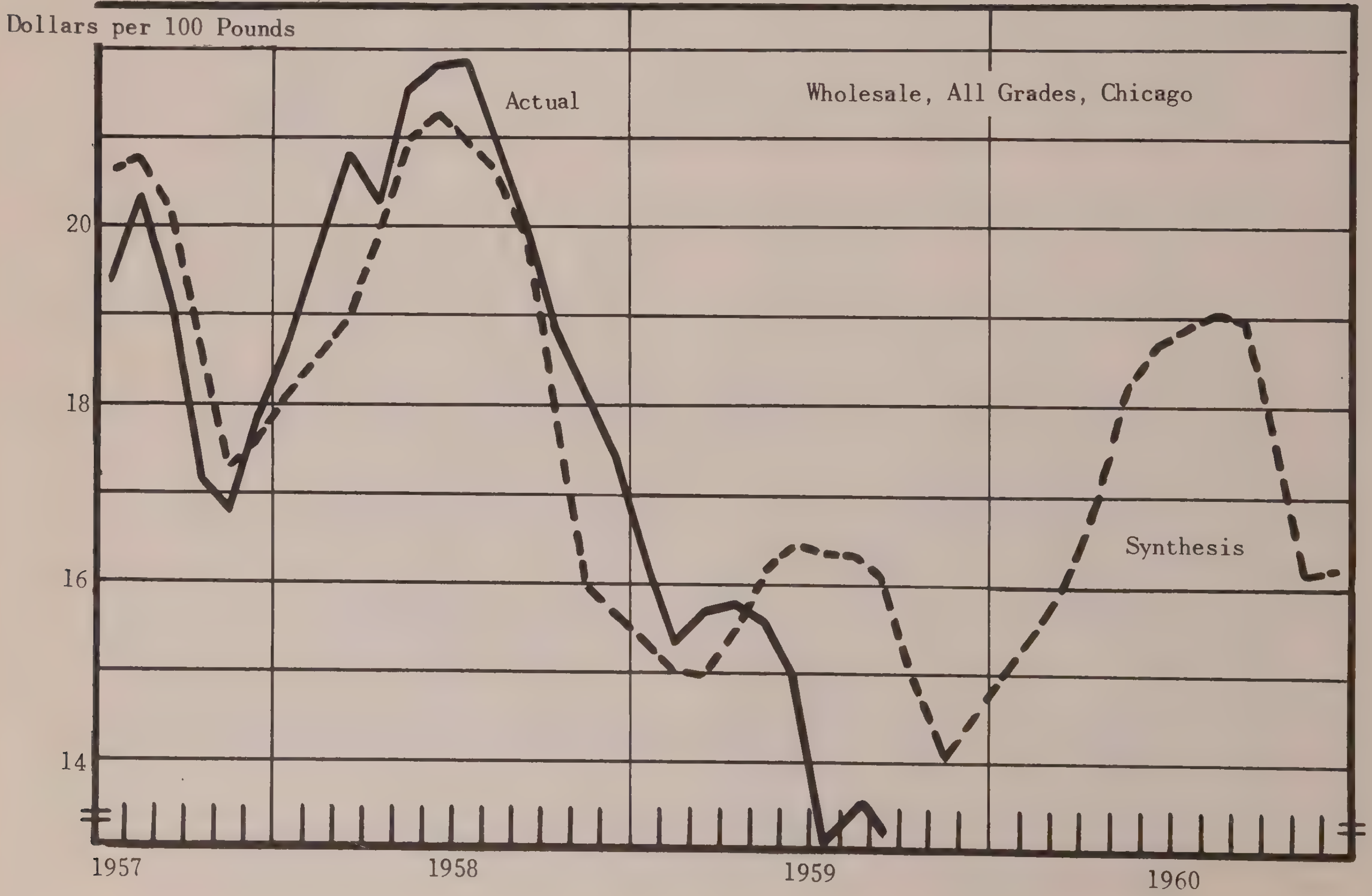
CORN PRICES

The price of No. 3 yellow corn at Chicago averaged 109.7 cents per bushel during October.



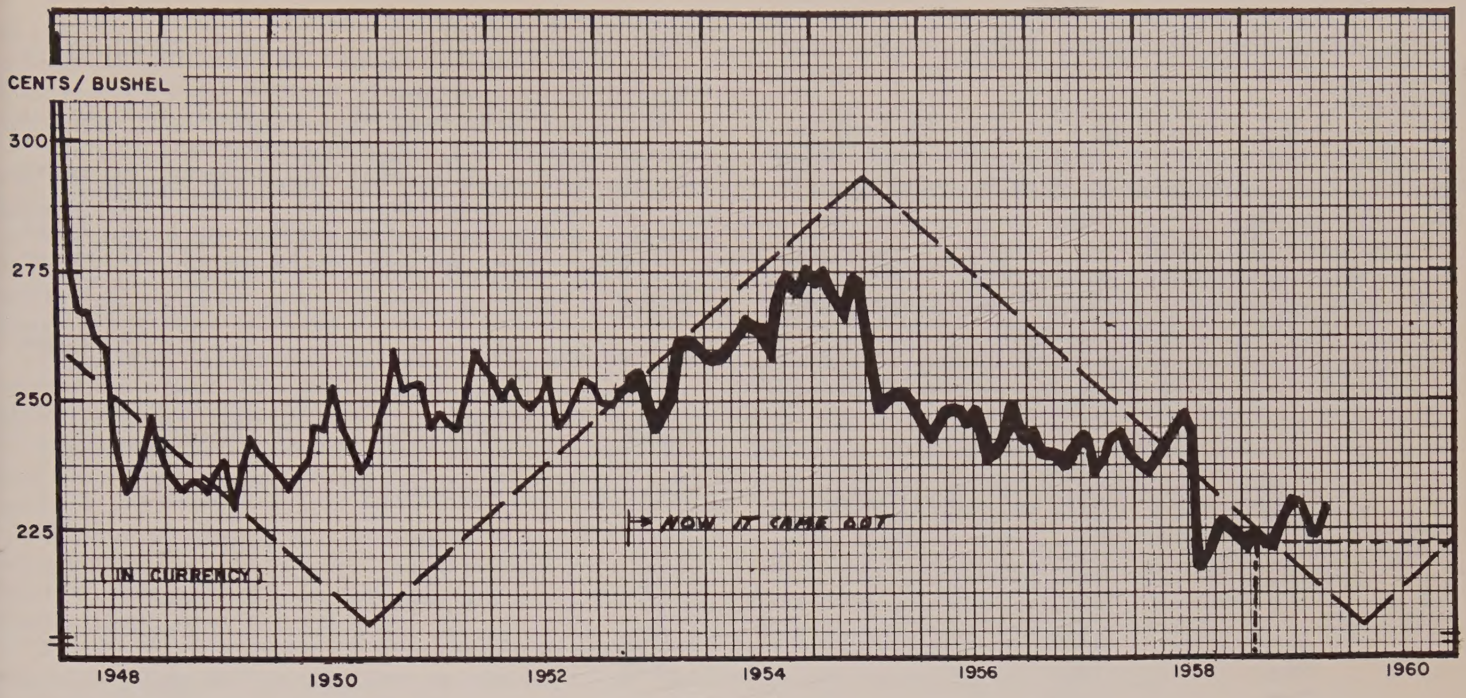
HOG PRICES

The average price of hogs, wholesale, all grades, at Chicago in September was $13.20 per 100 pounds.



WHEAT PRICES

The average price of No. 1 dark northern spring wheat at Minneapolis was 229.3 cents per bushel during October.



MANUFACTURING PRODUCTION

The seasonally adjusted F R B Index of Manufacturing Production was 151 in October.

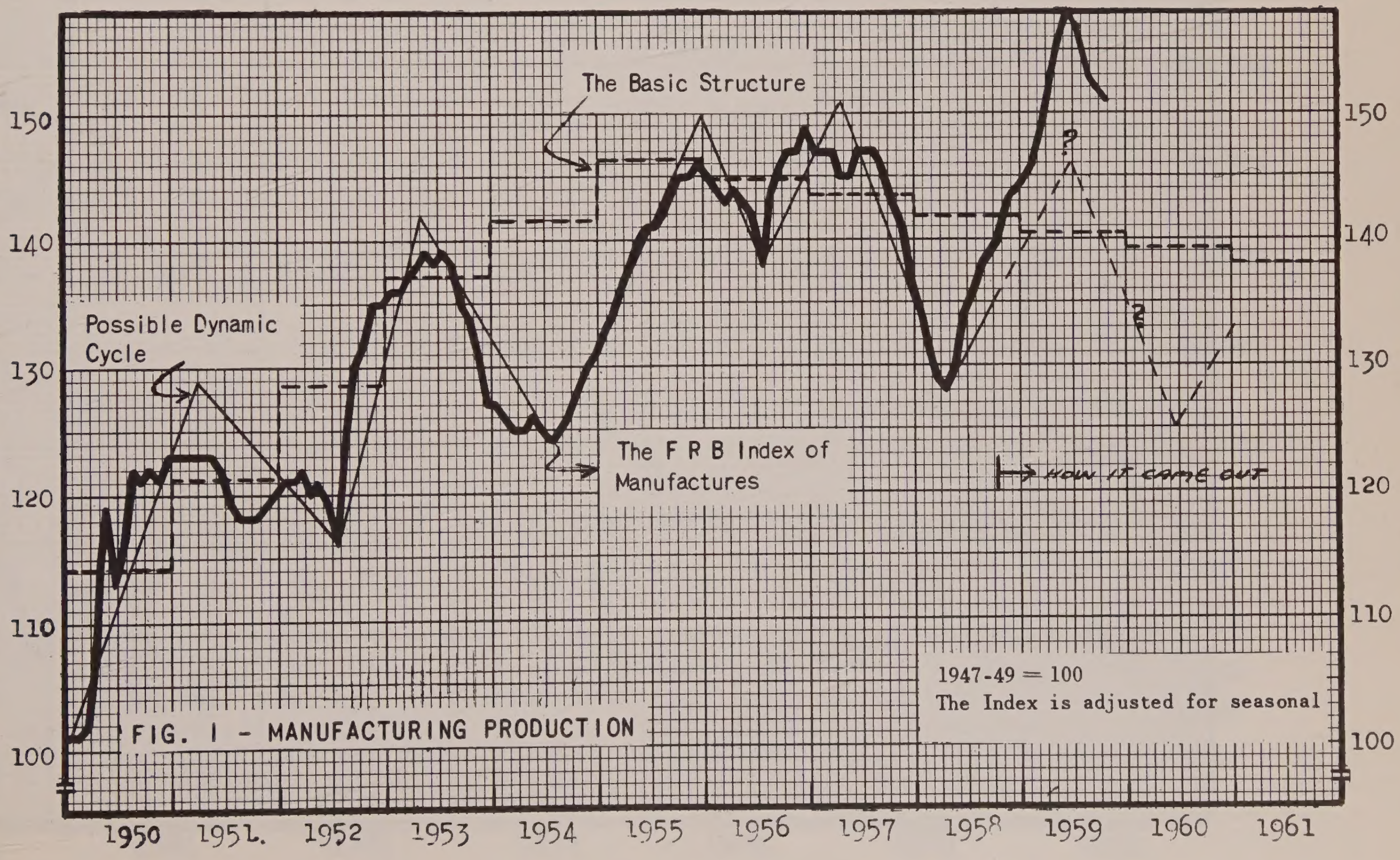


FIG. 1 - MANUFACTURING PRODUCTION

1947-49 = 100
The Index is adjusted for seasonal

The Geisinger Indicator

FORECAST

The Federal Reserve Board's Index of Industrial Production was 148 in October (after seasonal adjustment).

Although there has been a drop of 5% from the June peak Index of 155, industrial production kept at a very high level through October, despite the steel strike.

What about the future?

The Geisinger Indicator for July (March 1960 when advanced) dropped to 2.8. This is the second month of decline in this Indicator.

The First Difference Indicator also continued to decline, and reached -1.83 (on a preliminary basis) for September.

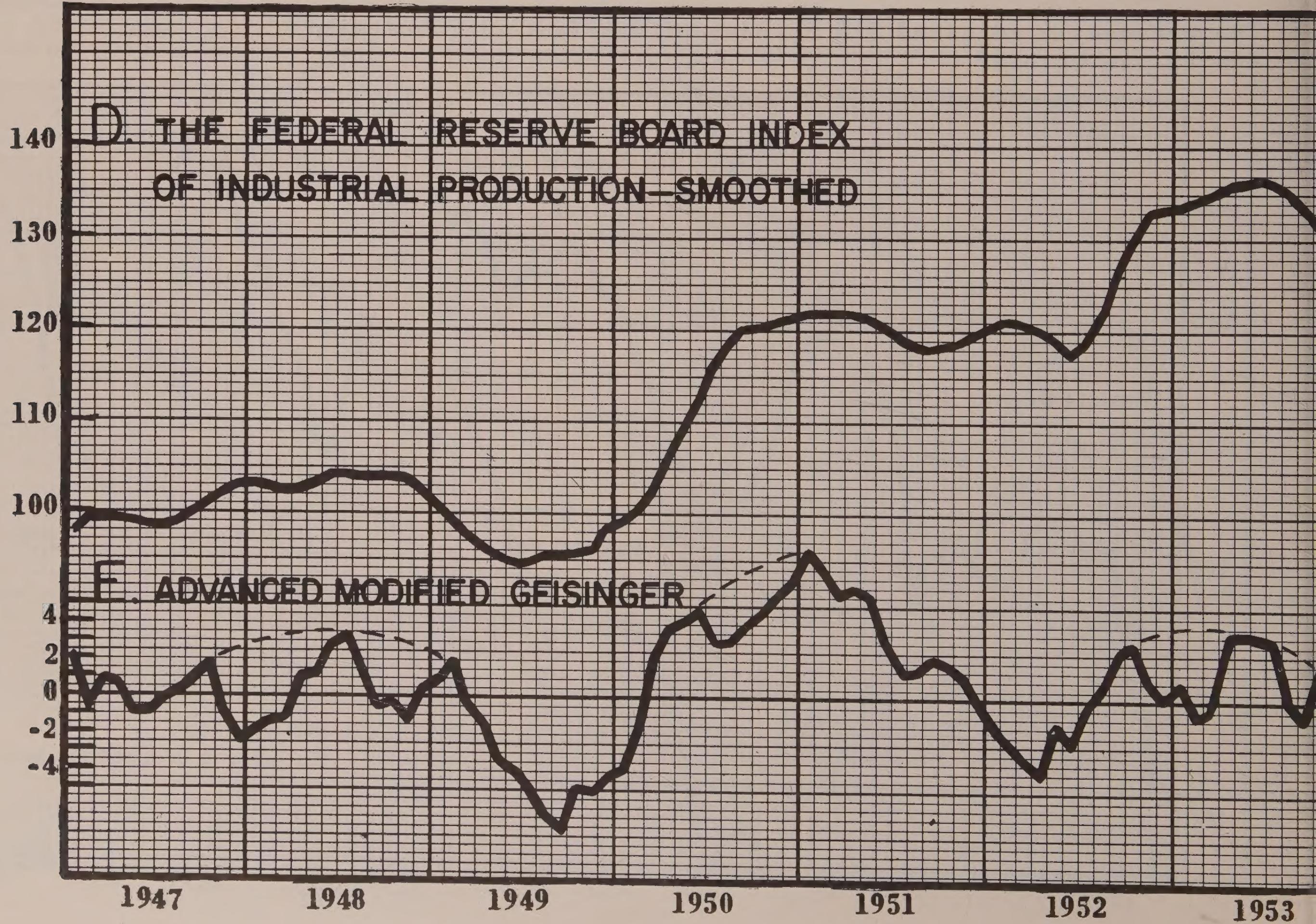
The Modified Geisinger Indicator for July (March 1960 when advanced) dropped to 2.63.

All the Indicators, when plotted, now show a downturn instead of a sideways movement. This fact introduces a note of caution. However, at least part of the present behavior of the indexes is merely a reflexion of the strike. As such, it is not to be taken as seriously as it otherwise would be.

November 25, 1959 E. R. Dewey

Month	F.R.B. Index	Geisinger Indicator	First Difference Indicator	Modified Geisinger Indicator	Timing Advanced 8 Months
May-1959	153	5.0	2.67	7.67	1960-Jan
Jun	155	4.0	1.83	5.83	Feb
Jul	153	2.8	-0.17	2.63	Mar
Aug	149	*	-1.67r	*	Apr
Sep	149r	*	-1.83p	*	May
Oct	148p	*	*	*	Jun

p - preliminary r - revised * - not yet available



Explanation

The Modified Geisinger Indicator is an index which, in the past, has usually gone up and down ahead of the Federal Reserve Board Index of Industrial Production. The Modified Geisinger Indicator thus throws some light on the future.

The Modified Geisinger Indicator is the sum of the Geisinger Indicator and The First Difference Indicator.

The Geisinger Indicator was invented by Robert Geisinger. It is derived from figures which are published monthly in the **Survey of Current Business.** (Col. 2 of the table.)

The First Difference Indicator, is merely the amount by which the smoothed F. R. B. Index is above or below the value for the preceding month. It registers the rate of advance or decline. It has some forecasting value, too. (Col. 3 of the table.)

The sum of these two Indicators is the *Modified* Geisinger Indicator. It is advanced by eight months and plotted as the bottom line of the chart. (Col. 4 of the table.)

The F. R. B. Index of Industrial Production measures physical production in the U. S. A. It has nothing to do with stock prices. (Col. 1 of the table.)

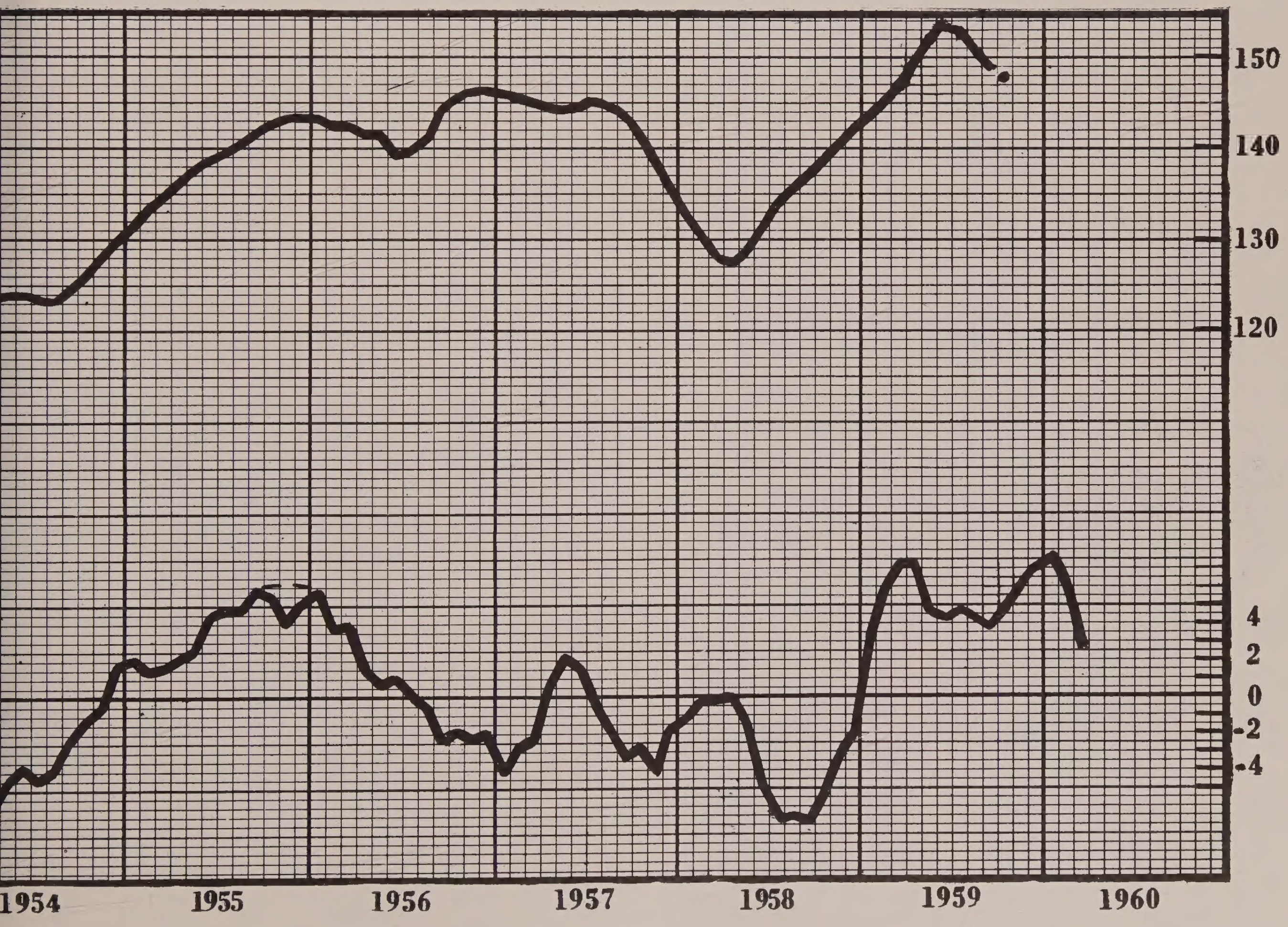
The smoothed values of the F. R. B. Index are plotted as the top line on the chart. It is smoothed by a 3-month moving average posted to the second position. The latest actual monthly Index of Production is recorded by a dot.

Interpretation

In the past, when the *Geisinger* Indicator going up, has cut -2, good business has followed; when, going down, it has cut -2, bad business has followed.

The important *turns* of the *Geisinger* Indicator and the *Modified* Geisinger Indicator often come 8 or 9 months before corresponding turns in Industrial Production. This fact gives some idea of what is around the corner. To help you to grope your way into tomorrow the Modified Geisinger Indicator is advanced 8 months. Where it is now, Industrial Production may soon be.

The degree to which the two curves correspond can be seen by inspection of the chart. The correspondence is general rather than specific. It is the broad sweep of the lines which is to be watched. The dashed lines which are added show how the eye should follow the Indicator.



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